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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,337	03/12/2001	Dean Hildebrand	CA920000003US1	1147

7590

06/16/2004

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EXAMINER

HO, THE T

ART UNIT

PAPER NUMBER

2126

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,337

Applicant(s)

HILDEBRAND ET AL.

Examiner

The Thanh Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the application filed 3/12/2001.
2. Claims 1-14 have been examined and are pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddon U.S Patent No. 6,622,155 in view of Kanamori U.S Patent No. 5,754,854.

As to claim 1, Haddon teaches a language extension to an object oriented programming language (Java virtual machine, line 67 column 5) for the allocation of a resource object to users (multiple threads accessing a shared resource, lines 15-45 column 5), comprising:

a resource pool storing an available resource object (Data 304, Fig. 3);
a resource queue (Queue 308, Fig. 3) for storing data representing select ones of the users seeking the allocation of the resource objects (the queue 308 may hold several threads which are each waiting to gain access to the shared resource 304, lines 57-59 column 8);

a release resource system for releasing a concluded resource object after use by a user (lines 11-62 column 8; Fig. 3), comprising:

returning the concluded resource object to the resource pool (data 304 being available before thread 1 enter the queue, lines 36-45 column 8);

when the resource queue is empty (no other threads waiting on the queue, line 39 column 8), notify the users waiting on a synchronization object (Queue 308, Fig. 3) that the concluded resource object is available (there are no other threads waiting in the Queue 308 at the time that Thread 1 entered the monitor; therefore, Thread 1 gains access to the lock 320, which functionally prevents other threads from accessing the data 304, lines 38-42 column 8);

an acquire resource system for an acquiring user to acquire a resource object (lines 11-62 column 8; Fig. 3), comprising:

returning the resource object in the resource pool if the resource pool is not empty (data 304 being available before thread 1 enter the queue, lines 36-45 column 8) and there are no users on the resource queue (no other threads waiting on the queue, line 39 column 8);

when the resource queue is non-empty (several threads which are each waiting to gain access to the shared resource 304, lines 57-59 column 8):

adding the acquiring user to the resource queue (Thread 2 is forced to wait in a queue 308, lines 55-56 column 8);

having the acquiring user wait for notification (wait for notification procedure, line 31 column 3);

awakening the acquiring user (notify procedure, line 33 column 3) when there is a resource object in the resource pool;

determining if the acquiring user is at the head of the resource queue (the queue 308 hold several threads and designed with a first-in-first-out FIFO scheme, lines 57-62 column 8), and if is:

removing the acquiring user from the resource queue (Thread 1 enters, there are no other threads waiting in the Queue 308 at the time that Thread 1 entered the monitor; therefore, Thread 1 gains access the data 304, lines 36-42 column 8);

removing the resource object from the resource pool (data 304 being available before thread 1 enter the queue, lines 36-45 column 8);

returning the resource object to the acquiring user (Thread 1 has access and control of the shared resource 304 which it uses to perform its calculations, lines 48-50 column 8), otherwise continuing to have the acquiring user wait for notification (wait for notification procedure, line 31 column 3);

the acquire resource system return a time out exception if the acquiring user does not acquire the resource object within a predefined time (a lock queue includes a plurality of registers pipelined together, wherein lock requests only enter the lock queue if they are refused access to a shared resource a predetermined number of times, lines 64-67 column 2);

synchronization means (thread synchronization, lines 9-10 column 1) to constrain users such that only one user may execute either the release resource system or the acquire resource system at any one time (Thread 1 has access and control of the

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shared resource 304 which it uses to perform its calculations, while Thread 2 is forced to wait in a queue, lines 46-56 column 8), synchronization means being synchronized (lines 36-49 column 2) on the synchronization object (Queue 308, Fig. 3).

Haddon does not explicitly teach more than one resource objects in the resource pool.

Kanamori teaches a system wherein multiple programs try to access a shared resource within a resource grouping facility. This facility creates multiple proxy resources within the facility when detecting that multiple programs are trying to access the shared resource (lines 9-22 column 3). It would have been obvious to apply the teachings of Kanamori to the system of Haddon because the resource pool of Haddon could have more than one shared resources for multiple threads; therefore reducing the processing time of the threads waiting to access the shared resource.

As to claim 2, Haddon as modified further teaches the synchronization object is the resource queue (Queue 308, Fig. 3).

As to claim 3, Haddon as modified further teaches the programming language is Java (Java virtual machine, line 67 column 5).

As to claim 4, Haddon as modified further teaches a helper means to wait for the acquiring user to be at the head of the resource queue (there are no other threads waiting in the Queue 308 at the time that Thread 1 entered the monitor; therefore, Thread 1 gains access to the lock 320, which functionally prevents other threads from accessing the data 304, lines 38-42 column 8; the queue 308 hold several threads and designed with a first-in-first-out FIFO scheme, lines 57-62 column 8) and the resource

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pool to be non-empty (data 304 being available before thread 1 enter the queue, lines 36-45 column 8).

As to claim 5, it is a method claim of claim 1. Therefore, it is rejected for the same reasons as claim 1 above.

As to claim 6, it is a programming product claim of claim 5. Therefore, it is rejected for the same reasons as claim 5 above.

As to claims 7-10, they are programming product claims of claims 1-4. Therefore, they are rejected for the same reasons as claims 1-4 above.

As to claim 11, it is a computer program product claim of claims 1 and 3. Therefore, it is rejected for the same reasons as claims 1 and 3 above. Haddon as modified further teaches threads (multiple threads accessing a shared resource, lines 15-45 column 5).

As to claims 12-13, they are computer program product claims of claims 2 and 4. Therefore, they are rejected for the same reasons as claims 2 and 4 above.

As to claim 14, it is a programming language claim of claim 1. Therefore, it is rejected for the same reasons as claim 1 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to The Thanh Ho whose telephone number is 703-306-5540. A voice mail service is also available for this number. The examiner can normally be reached on Monday – Friday, 8:30 am – 5:00 pm.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Any response to this action should be mailed to:

Commissioner for Patents

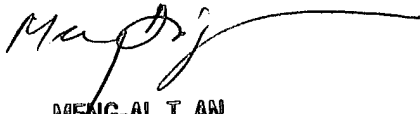
P.O Box 1450

Alexandria, VA 22313-1450

Or fax to:

- AFTER-FINAL faxes must be signed and sent to (703) 872 - 9306.
- OFFICAL faxes must be signed and sent to (703) 872 - 9306.
- NON OFFICAL faxes should not be signed, please send to (703) 746 - 3493

TTH
June 14, 2004


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